

**WHAT IS CLAIMED IS:**

1. A scanning microscope comprising:
  - a light source for emitting illuminating light for illumination of a specimen,
  - at least one first detector for descanning detection of detection light proceeding from the specimen,
  - an objective arranged in both an illumination beam path and a detection beam path,
  - a coupling-out element insertable into the illumination and detection beam path for non-descanning detection, and removable from the illumination and detection beam path for descanning detection, and
  - a light-guiding fiber for transporting at least a portion of the detection light from the coupling-out element to the first detector.
2. The scanning microscope as defined in Claim 1 further comprising: at least one guidance element for positioning the coupling-out element.
3. The scanning microscope as defined in Claim 1 further comprising: at least one banking element for positioning the coupling-out element.
4. The scanning microscope as defined in Claim 1, further comprising: a turret or a sliding carriage, on which the coupling-out element is mounted.
5. The scanning microscope as defined in Claim 1, wherein the coupling-out element comprises a beam splitter.
6. The scanning microscope as defined in Claim 1, wherein the coupling-out element comprises an excitation filter for blocking light of at least one wavelength out of the illuminating beam path.

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7. The scanning microscope as defined in Claim 1, wherein the coupling-out element comprises a detection filter for blocking light of at least one wavelength out of the detection beam path.
8. The scanning microscope as defined in Claim 1 further comprising: a fluorescent incident-light illuminator in which the coupling-out element is positionable.
9. A coupling-out element for a scanning microscope, the scanning microscope including a light source for emitting illuminating light for illumination of a specimen and at least one first detector for descans detection of detection light proceeding from the specimen, the coupling element being insertable into an illumination and detection beam path of the scanning microscope for non-descan detection, and being removable from the illumination and detection beam path for descans detection, the coupling-out element comprising a light-guiding fiber for transporting at least a portion of detection light to the at least one first detector.
10. The coupling-out element as defined in Claim 9, wherein the coupling-out element is positionable in a turret.
11. The coupling-out element as defined in Claim 9, wherein the coupling-out element is positionable in a sliding carriage.
12. The coupling-out element as defined in Claim 9, wherein the coupling-out element is positionable in a fluorescent incident-light illuminator.
13. The coupling-out element as defined in Claim 9 further comprising guidance and/or banking elements for positioning of the coupling-out element.

14. The coupling-out element as defined in Claim 9 further comprising: an excitation filter for blocking light of at least one wavelength out of the illumination beam path.
15. The coupling-out element as defined in Claim 9 further comprising: a detection filter for blocking light of at least one wavelength out of the detection beam path
16. The coupling-out element as defined in Claim 9 further comprising: an optical system.